

IN THE CLAIMS:

The following is a complete listing of the claims, and replaces all earlier version and listings.

1. (currently amended): An image processing method of generating color material data for using a plurality of kinds of color materials to output an image, said method comprising the steps of:

inputting an image signal;

determining a plurality of combinations of the plurality of kinds of color materials corresponding to the inputted image signal value;

calculating the total color material use amount for each of the plurality of combinations of the plurality of kinds of color materials;

determining a nonlinear smooth variation of the total color material use amount with respect to a variation of the value of a predetermined color represented by ~~the~~ inputted image signals; and

selecting the total color material use amount meeting the determined non-linear smooth variation of the total color material use amount from the determined plurality of combinations of the plurality of kinds of color materials,

such that the total color material use amount of the plurality of kinds of color materials meets a smooth function for the total color material use amount within a range of the value of the image signal that can be inputted,

~~generating a combination of the color material data for the plurality of kinds of color materials so that a total color material use amount of the plurality of kinds of color~~

~~materials, which is determined according to the combination of the plurality kinds of color materials corresponding to the inputted image signal, meets a smooth function for the total color material use amount within a range of the image signal that can be inputted.~~

2. (canceled).

3. (previously presented): An image processing method as claimed in claim 1, wherein said step of generating the combination includes generating the combination corresponding to the inputted image signal with reference to a table, which determines the combination of the plurality kinds of color material so that the total color material use amount of the plurality kinds of color material, which is determined according to the combination of the plurality kinds of color material, and meets the smooth function for the total color material use amount within a range of the image signal that can be inputted.

4. (original): An image processing method as claimed in claim 1, further comprising the step of forming the smooth function for the total color material use amount.

5. (previously presented): An image processing method as claimed in claim 4, wherein said step of forming the smooth function includes displaying a function for a total color material use amount for a predetermined color on a display device and forming the smooth function based on input by an operation on the display.

6. (previously presented): An image processing method as claimed in claim 1, wherein of the plurality of kinds of color material are yellow, magenta, cyan, and black.

7. (previously presented): : An image processing method as claimed in claim 1, wherein the plurality of kinds of color material are yellow, magenta, cyan, black, and light magenta, having lower concentration than the magenta, and light cyan, having lower concentration than the cyan.

8. (original): An image processing method as claimed in claim 1, wherein the color material is ink.

9. (original): An image processing method as claimed in claim 1, wherein the color material is toner.

10. (currently amended): An image processing apparatus for generating color material data for using a plurality of kinds of color materials to output an image, comprising:

input means for inputting an image signal;

means for determining a plurality of combinations of the plurality of kinds of color materials corresponding to the inputted image signal[s] value,

means for calculating the total color material use amount for each of the plurality of combinations of the plurality of kinds of color materials,

means for determining a nonlinear smooth variation of the total color material use amount with respect to a variation of the value of a predetermined color represented by ~~the inputted~~ image signals, and

means for selecting the total color material use amount meeting the determined non-linear smooth variation of the total color material use amount from the determined plurality of combinations of the plurality of kinds of color materials,

such that the total color material use amount of the plurality of kinds of color materials meets a [[the]] smooth function for the total color material use amount within a range of the value of the image signal that can be inputted.

11. (canceled).

12. (previously presented): An image processing apparatus as claimed in claim 10, wherein said data generating means generates the combination corresponding to the inputted image signal with reference to a table, which determines the combination of the plurality of kinds of color materials so that the total color material use amount of the plurality of kinds of color materials, which is determined according to the combination of said plurality of kinds of color materials, and meets the smooth function for the total color material use amount within a range of the image signal that can be inputted.

13. (original): An image processing apparatus as claimed in claim 10, further comprising function forming means for forming the smooth function for the total color material use amount.

14. (previously presented): An image processing apparatus as claimed in claim 13, wherein said function forming means displays a function for a total color material use amount for a predetermined color on a display device and forms the smooth function based on input by an operation on the display.

15. (previously presented): An image processing apparatus as claimed in claim 10, wherein the plurality of kinds of color material are yellow, magenta, cyan, and black.

16. (previously presented): An image processing apparatus as claimed in claim 10, wherein the plurality of kinds of color material are yellow, magenta, cyan, black, and light magenta, having lower concentration than the magenta, and light cyan, having lower concentration than the cyan.

17. (original): An image processing apparatus as claimed in claim 10, wherein the color material is ink.

18. (original): An image processing apparatus as claimed in claim 10, wherein the color material is toner.

19. (cancelled).

20. (currently amended): A computer-readable medium storing a program to make a computer execute an image processing of generating color material data for using a plurality of kinds of color materials to output an image, said processing comprising the steps of:

inputting an image signal; and

determining a plurality of combinations of the plurality of kinds of color materials corresponding to the inputted image signal value,

calculating the total color material use amount for each of the plurality of combinations of the plurality of kinds of color materials,

determining a nonlinear smooth variation of the total color material use amount with respect to a variation of the value of a predetermined color represented by ~~the~~ inputted image signals, and

selecting the total color material use amount meeting the determined nonlinear smooth variation of the total color material use amount from the determined plurality of combinations of the plurality of kinds of color materials,

such that the total color material use amount of the plurality of kinds of color materials meets a smooth function for the total color material use amount within a range of the value of the image signal that can be inputted,

~~generating a combination of the color material data for the plurality of kinds of color materials so that a total color material use amount of the plurality of kinds of color materials, which is determined according to the combination of the plurality of kinds of color materials corresponding to the inputted image signal, and meets a smooth function~~

for the total color material use amount within a range of the image signal that can be inputted.